

USSR

GAZIZOV, M. B., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973,
p 213

The yields of the products (IV) and (V) depend strongly on the ratio of the initial compounds (I) and (II). Some physical-chemical properties of the compounds and the schematic for obtaining compound (IV) are presented.

2/2

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UDC 547.341 + 546.185'131

ISMAILOV, V. M., MOSKVA, V. V., BABAYEVA, T. A., RAZUMOV, A. I., AKHMEDOV, SH. T., ZYKOVA, T. V., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov, and Azerbaydzhan State University Imeni S. M. Kirov

"Derivatives of Substituted Vinylphosphonic Acids. XV. Reaction of Phosphorus Pentachloride With α, β -Dichlorovinyl Alkyl Ethers"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1011-1113

Abstract: It was shown that α, β -dichlorovinyl alkyl ethers react with phosphorus pentachloride in an inert solvent such as benzene or carbon tetrachloride at 0-5° forming a complex which after decomposition with hydrogensulfide yields α, β -dichloro- β -alkoxyvinylphosphonic or thiophosphonic acid dichlorides. The reaction is sensitive to temperature; increased temperature lowers the phosphorylation products and increases the byproducts. Analogous derivatives may be obtained by high temperature chlorination of β -alkoxyvinylphosphonic acid dichlorides.

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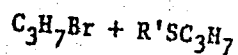
UDC 547.241

KRASIL'NIKOVA, Ye. A., ZYKOVA, T. V., RAZUMOV, A. M., STARSHOV, I. M.,
ORLOVA, G. V., and SALAKHUTDINOV, R. A., Kazan' Chemical-Technological
Institute Imeni S. M. Kirov

"Investigation of the Series of Phosphinic and Phosphinous Acid Derivatives.
XC. Effect of the Structure of Alkyl Halide on the Reaction With Esters of
Ethyl(Phenyl)dithiophosphonous Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1701-1705

Abstract: The study included reactions of normal and branched alkyl halides
with dipropyl esters of ethyl- and phenyldithiophosphonous acids. The normal
alkyl halides react much faster in this reaction than the branched alkyl
reagents. The reaction can be described by the equation $RP(SC_3H_7)_2 +$
 $R'Br \rightarrow RR'P(S)(SC_3H_7) + RR_2'P(S) + RP(S)(SC_3H_7)_2 +$



as supported by NMR 31p data. It was shown that changing from normal alkyl
halides to the branched isomers increases the tendency of this reaction to
occur via the sulfur atom rather than through the phosphorus atom.

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KAZUMOV L.D.

SC 2P45 57974
13 JAN 73
(Herald of Communications)
(Vol. 33, No. 7, 1972)

K7111

THE COEFFICIENT OF PROTECTION AGAINST THE METAL SHEATHINGS
OF COMMUNICATION CABLES IN A WIDE FREQUENCY RANGE
Article by L. D. Kazumov, candidate of technical sciences and N. B.
Mikhlin, engineer, VNIITs SVV, Moscow, No 7, July 1972, pp 28-32

Because of the rapid of electrification and appearance of
high-power radio stations, problems of protection of commu-
nication lines from the effect of external electromagnetic
fields become ever more urgent. Because of this, problem
of accurate determination of the shielding effect of the
metal sheathings of communication cables acquires great
importance. An experimental model of a device has been
developed at ISILS (Central Scientific Research Institute
of Communications) for measuring the coefficient of pro-
tective action of the metal sheathings of cables in a wide
frequency band (50 cps-500 kc) and in the case of longitu-
dinal and [electromagnetic force] in metal sheathings con-
taining armor tapes, up to 500 volts/kilometer.

Problem of Shielding

The shielding action of the metal sheathings of the cable is
evaluated by the shielding factor S (in the wide-frequency range it is
usually called coefficient of protective action -- K_{pd}) which is equal
to the ratio of the voltage in a cable conductor (or longitudinal emf)
to the voltage induced in the same conductor (or longitudinal emf)
without the metal sheathings with the other conditions being equal.
In the case of high frequencies it is customary to express the shield-
ing action in terms of the shielding attenuation:

$$A = 10 \lg \frac{1}{S}$$

(1)

The actual K_{pd} (S) and ideal K_{pd} (S_{id}) should be differentiated.
The latter is determined by the following formula:

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UDC 621.391.8

RAZUMOV, L. D., PORTNOV, E. L.

"Causes of Damage to Underground Mains in the Presence of Dangerous Effects from Electric Power Transmission Lines"

Moscow, Elektrosvyaz', No 5, 1971, pp 45-48

Abstract: A study is made of the causes of damage to an underground main in the presence of dangerous effects from electric power transmission lines. The most dangerous section from the point of view of damage to the communications mains is determined on the basis of the investigation.

Analysis of the damage demonstrated that the most probable cause resulting from the effect of electric power transmission lines is the occurrence of high-voltages in the cable strands as a result of magnetic and galvanic effects in the presence of short circuits in the electric power transmission line. The occurrence of high-voltages is the result of unsatisfactory grounding of the metal sheathings of the cables as a result of which the high protective effect of the aluminum sheathing is not used at all. In order to protect the cable in sections with an increased effect from power transmission lines, line-protection grounds must be installed with low resistance to spreading out in accordance with

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RAZUMOV, L. D., et al., *Elektrosvyaz*', No 5, 1971, pp 45-48

the calculations of the effect, and these resistances must be kept within the norm. When calculating the dangerous power transmission line voltages it is necessary to consider the galvanic effect and to use only those values of the specific ground resistance which were obtained as a result of direct local measurements. Remote feeding of the amplifiers of a main subject to increased danger from electric power transmission lines must be performed only by the "wire-wire" scheme.

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USSR

UDC 678.029+661.66

ANDRIANOV, K. A., SOSEDOV, V. P., PATALAKH, I. I., KROTOV, A. I., RAZUMOV,
L. L., and KAVEROV, A. T.

"Some Features of the Formation of Novel Thermally Stable Reinforced Plastics"

Moscow, Doklady Akademii Nauk SSSR, Vol200, No 6, Oct 71, pp 1343-1344

Abstract: One of the most important problems in the area of chemistry and physics of solid bodies concerns development of mechanically strong thermally stable materials. The reinforced materials currently available are either not sufficiently strong or thermally instable. With this in mind, experiments were carried out in which glass fiber KM-11 and a hydrocarbon fiber were treated with silicconorganic polymer (polymethyloxydiphenylpropanesiloxane) followed by thermal activation in a reducing medium and in hydrocarbon medium. In this fashion materials with high specific strength at elevated temperatures were obtained, exceeding considerably the properties of known construction materials.

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Acc. Nr. **AP0053895** - Abstracting Service: **CHEMICAL ABST.** **6-70** Ref. Code **UR0076**

115106t Molecular theory on the adsorption of simple molecules on nonporous ionic crystals. II. Statistical calculation of thermodynamic properties of argon adsorbed on potassium chloride. Kiselev, A. V.; Lopatkin, A. A.; Razumova, B. R. (Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). *Zh. Fiz. Khim.* 1970, 44(1), 150-4 (Russ). Configurational integrals and adsorption potentials $\phi(T)$ of Ar adsorbed on KCl crystals were calcd., and differential thermodynamic functions \bar{U}_a , $\bar{\mu}_a$, and \bar{S}_a (molal energy of adsorption, chem. potential of adsorption, and entropy of adsorption) of adsorbed Ar were obtained from statistical thermodynamic calcs. for low coverage of the surface. Calcd. isosteric heats of adsorption ($-Q_a = \Delta \bar{H}_a = \phi(T) - RT$) agreed well with exptl. values obtained for adsorption of Ar on the face of 100 KCl crystals. Good agreement for low and medium coverages (θ) was also found for calcd. and exptl. $\Delta \bar{\mu}_a$ and $\Delta \bar{S}_a$ as a function of θ . Differential heat capacity of adsorbed Ar was estd. as 6.3 cal/degree mole. The mobility of the adsorbed Ar atom was high enough so that it could be moved from one site to another not only by gas phase transfer but also through 2-dimensional diffusion in the adsorption layer.

J. Hala]

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C.K.

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UDC 911.3.616.9.576.895.42(42+57)

BABENKO, L. V., NAUMOV, R. L., USPENSKIY, I. V., MERINOV, V. A., RUBINA, M. A., VASIL'YEVA, I. S., IOFFE, I. D., OBLESOVA, L. N., and RAZUMOVA, I. V.

"A Biological Study of Ixodes Ticks -- Disease Vectors -- and a Scientific Study of Countermeasures in Natural Foci"

V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i tropich. med., 1970 (Proceedings on the Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 52-53 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No. 1.36.67)

Translation: This study has four objectives: a) study of the ecology and population biology of the prevalent Ixodes and Dermacentor tick species; b) complex study of biological laws in natural foci of tickborne encephalitis and in one focus of Asian tickborne rickettsiosis (in Krasnoyarskiy Kray); c) study and practice of countermeasures against tickborne encephalitis for residents of large, newly-constructed housing developments in the hill rayons of Krasnoyarskiy Kray; and d) study of the effect of pesticides on ticks (I. persulcatus, for example). A proposal is advanced for research on the

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BABENKO, L. V., et al, V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i tropich, med., 1970 (Proceedings on the Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 52-53 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.67)

characteristics of the population biology, morphology, and physiology of ticks within various geographic conditions.

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--NEUTRON ACTIVATION DETERMINATION OF TRACE IMPURITIES IN HIGHLY PURE
GERMANIUM -U-
AUTHOR-(03)-RAZUMOVA, G.N., SHUBA, I.D., VASILYEV, I.YA.
COUNTRY OF INFO--USSR
SOURCE--RADKOKHIMIYA 1970, 12(11), 133-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GERMANIUM, ULTRAHIGH PURITY METAL, HIGH PURITY METAL, NEUTRON
ACTIVATION ANALYSIS, GAMMA SPECTROMETER, SPECTROMETRY, METAL IMPURITY,
ANION EXCHANGE RESIN, CATION EXCHANGE RESIN, GOLD, CADMIUM, ZINC,
MERCURY/(U)AV17 ION EXCHANGE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0120 STEP NO--UR/0186/70/012/001/0133/0137
CIRC ACCESSION NO--AP0132413

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0132413
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A 0.2 G SAMPLE OF HIGH PURITY GE WAS IRRADIATED IN A FLUX OF 1.2 TIMES 10 PRIME13 NEUTRONS-CM PRIME2 SEC TO AN INTEGRATED DOSE OF 8.6 TIMES 10 PRIME17 NEUTRONS; SAMPLES OF THE IMPURITIES TO BE DETD. WERE ALSO IRRADIATED IN THE SAME FLUX FOR THE SAME TIME. THE GE SAMPLE WAS THEN DISSOLVED IN A 1:1:1 HCL-HNO SUB3 H SUB2 O MIXT. AND SMALL AMTS. (SIMILAR TO 10 PRIME NEGATIVE6 10 PRIME NEGATIVE4 G.) OF THE ELEMENTS TO BE DETD. WERE ADDED TO THE SOLN., TO SERVE AS CARRIERS. THE AU PRESENT IN THE SOLN. WAS THEN ISOLATED BY SORPTION ON THE AV-17 RESIN IN THE CLO SUB4 PRIME NEGATIVE FORM, AND ALL OTHER IMPURITIES WERE SEPD. BY CONVENTIONAL ION EXCHANGE CHROMATOG. ON CATIONIC RESINS; THE CONCNS. OF IMPURITIES WERE THEN DETD. BY GAMMA SPECTROMETRY. THE SENSITIVITY OF THE METHOD (FOR A 0.2 G SAMPLE) WAS OF THE ORDER OF 10 PRIME NEGATIVE6 G FOR FE; 10 PRIME NEGATIVE7 G FOR CD, ZN, AND HG; 10 PRIME NEGATIVE8 G FOR AS; 10 PRIME NEGATIVE9 G FOR SB; AND 10 PRIME NEGATIVE10 G FOR AU AND CU.

UNCLASSIFIED

AM0037531

NUCLEAR SCI. ABST.

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3332 (MATT-Trans-92) NEW RESULTS IN THE STUDY OF
ANOMALOUS PLASMA RESISTANCE IN THE TM-3 TOKAMAK.

Bobrovskii, G. A.; Kislyakov, A. I.; Petrov, M. P.; Razumova,

K. A.; Shcheglov, D. A. (Gosudarstvennyi Komitet po Ispol'zo-

vaniyu Atomnoi Energii SSSR, Moscow, Institut Atomnoi Energii).

Translated for Princeton Univ., N. J., from report LAE-1905.

16p. Dep. CFSTI.

An investigation was made of discharge conditions in the TM-3 device with a relatively high temperature and low concentration. Under these conditions protons are detected the temperature of which cannot be explained by Coulomb transfers from electrons to ions in a number of cases. The dependence of the anomalous resistance on certain parameters is studied. (auth)

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USSR

UDC 547.341

RAZUMOVA, N. A., GRUK, M. P., and PETROV, A. A., Leningrad Technological
Institute imeni Lensovet

"Phosphorus Containing Heterocyclics. Condensation of Glycol and Catechol
Esters of Arylphosphonous Acids With α,β -Unsaturated Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1475-1479

Abstract: Reactions of propyleneglycol and catechol esters of phenyl,
p-tolyl, and p-chlorophenylphosphonous acids with methylvinyl ketone and
mesitylene oxide leads to the formation of products whose structures may
be represented by a resonating system of pentacovalent and ionic forms.
The phosphorus compound in these condensations acts as a nucleophile. The
reactivity of the glycol esters of arylphosphonous acids is 40-50 times as
great as that of the catechol esters.

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USSR

UDC 547.341

BAGROV, F. V., RAZUMOVA, N. A., and PETROV, A. A.

"Condensation of the Glycol and Catechol Esters of Aryl Phosphinous Acids With 1,3-Dienes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 792-797

Abstract: The condensation of the catechol esters of p-dimethylbenzil (I), p-chlorophenyl (II), and p-dimethylaminophenylphosphorus acid (III), the ethyl glycol esters of compound I(IV), and p-(chlorophenyl) phosphorous acid (V) with butadiene and isoprene groups was used to study the influence of trivalent phosphorous groups on the rate and mechanism of the condensation. In every case the condensation went via a pentacovalent intermediate. The vinyl group reacted with the catechol esters of phenylphosphorous acid twice as fast as with I or II; it reacted with III only under vigorous conditions (180°C). The reactions of ethyl glycols showed the same pattern. NMR, IR, and other techniques were used to examine intermediates and products. Tables give the constants from the former and the theoretical and actual elemental composition of the products.

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UDC 547.341

RAZUMOVA, N. A., GRUK, M. P., and PETROV, A. A., Leningrad Technological
Institute Imeni Lensovet

"Reaction of Glycol and Pyrocatechol Esters of Phenylphosphonous Acid With
Methyl Vinyl Ketone"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, p 2114

Abstract: Ethyleneglycol ester of phenylphosphonous acid reacted with methyl vinyl ketone yields 2-phenyl-(2,2-ethylenedioxy)-5-methyl-1,2-isoxaphospholene, m.p. 61°. When the pyrocatechol ester was used in this reaction, the product was 2-phenyl-(2,2-phenylenedioxy)-5-methyl-1,2-isoxaphospholene, b.p. 158-160°/1 mm. The structures of these products were supported by NMR and IR spectroscopic data.

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USSR

UDC 547.341

GRUK, M. P., RAZUMOVA, N. A., and PETROV, A. A., Leningrad Technological Institute Imeni Lensovet

"Condensation of Glycol and Pyrocatechine Esters of Ethylphosphonous Acid With Methylvinyl Ketone"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, p 945

Abstract: Glycol and pyrocatechine esters of various arylphosphonous acids react with α,β -unsaturated ketones forming compounds with pentavalent phosphorus atom. The reactions of ethylphosphonous acid esters are even faster, going to completion in seconds to minutes. Two compounds have been synthesized: 2-ethyl(2,2-ethylenedioxy)-5-methyl-1,2-isoxaphospholanes, b.p. 78-79°/1 mm, d_4^{20} 1.1579, n_D^{20} 1.4870 and 2-ethyl(2,2-phenylenedioxy)-5-methyl-1,2-isoxaphospholene, b.p. 98-99°/1 mm, d_4^{20} 1.2311, n_D^{20} 1.5480.

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USSR

UDC 547.26'118

MINGALYEVA, K. S., ~~RAZUMOVA, N. A.~~ PETROV, A. A., YEVTIKHOV, Zh. L., and BAGROV, F. V., Leningrad Technological Institute imeni Lensovet

"Dipole Moments of Derivatives of Trivalent Phosphorus Which Contain a Dioxaphospholane Ring"

Leningrad, Zhurnal Obschey Khimii, Vol 41, No 11, Nov 1971, pp 2,431-2,434

Abstract: In trivalent phosphorus compounds, hybridization of the phosphorus atom varies readily in response to change in the type of substituent, and thanks to this the phosphorus may exhibit bifilarity. However, there is very little published information on variation in the dipole moments of compounds containing trivalent phosphorus. The present study, based on the dipole moment method, is intended to show the mutual effect of atoms in compounds containing dioxaphospholane rings. Data of electrographic research on molecules of 2-chloro-1,3,2-dioxaphospholane and triethyl phosphite were used to compute dipole moments. The group moment of the dioxaphospholane cycle was estimated from M. J. Aroney's data. Moments of the phosphorus-halogen bonds were determined from the dipole moments of the corresponding phosphorus trihalides. Laboratory measurements were made using dilute solutions in benzene at 20±0.05°. All experimental and calculated data are included in the paper. It is concluded that increase in the electron-acceptor capacity of the substituents is accompanied by an increase in the dipole moment.

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USSR

UDC 547.341

ZUBTSOVA, L. I., RAZUMOVA, N. A., and YAKOVLEVA, T. V., Leningrad Technological Institute imeni Lensovet

"Phosphorus-Containing Heterocycles. A Kinetic Study of the Reaction of Certain Phosphites With Isoprene"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,424-2,428

Abstract: The nature of the effect of electron and steric factors on the reactivity of both cyclic and acyclic phosphites toward dienes is not fully clear. The kinetics of condensation of dichloromethyl-, ethylenechloro- and diethylchlorophosphites with isoprene was studied. Reaction rate was checked by the infrared spectrometric method, based on intensity of a certain absorption band. Reactions were carried out in excess isoprene, with initial concentration of 1.7 mole percent of phosphite -- a close simulation of pseudo-monomolecular conditions. On the basis of kinetic data obtained, it was concluded that the phosphorus component in these reactions is definitely electrophilic. Comparison of the kinetic parameters for cyclic and for acyclic phosphites supported the presumption of a significant degree of conjugation of unshared electron pairs of oxygen with 3d orbits of trivalent phosphorus, in acyclic phosphites.
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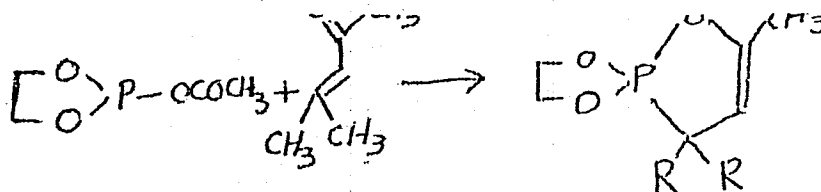
UDC 547.341

VOZNESENSKAYA, A. Kh., RAZUMOVA, N. A., and PETROV, A. A., Leningrad Technological Institute imeni Lensovet

"Condensation of Acetyl Ethylene Phosphite with Alpha, Beta-Unsaturated Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, p 234

Abstract: The condensation of acetyl ethylene phosphite with methyl vinyl ketone or mesityl oxide yields compounds with pentavalent phosphorus according to the scheme



where $\text{R} = \text{CH}_3$ or H

The composition and structure of the resultant substances was confirmed by analysis and IR and NMR spectra.

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USSR

UDC 547.341

RAZUMOVA, N. A., ZUBTSOVA, L. I., and PETROV, A. A.

"Phosphorus-Containing Heterocyclics: Condensation of Phosphites and Dihalo-phosphites of the Aliphatic Series With 1,3-Dienes"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2563-2565

Abstract: The esters of catechol and glycolphosphorous acids condense with dienes to form phospholine oxide derivatives; and with replacement of the alkoxy group by the stronger electron-withdrawing acetyl group there is an acceleration of the condensation. The authors tested whether this pattern would hold good for derivatives of trivalent phosphorous which do not contain a ring in their structure, and reached these conclusions:

With increase in the electron-acceptor capability of trivalent phosphorus, the rate of condensation with 1,3-dienes of acyclic phosphites, just as in the case of the cyclic esters, increases;

As regards the condensation rate, the 1,3-dienes can be arranged in the following descending order: isoprene, butadiene, piperylene; and chloroprene.

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RAZUMOVA, N. A., Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2563-2565

With bulky substituents, in the presence of trivalent phosphorus, steric hindrance predominates over the electron effect.

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UDC 547.341

BAGROV, F. V., and RAZUMOVA, N. A., Leningrad Technological Institute imeni
Lensovet

"Phosphorus-Containing Heterocycles: Glycol- and Catecholphenylphospholines"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2565-2570

Abstract: This is a continuation of an earlier study of the condensation of the ethyleneglycol and pyrocatechol esters of phenylphosphonous acid with butadiene.

It was found that the condensation of the catechol ester of phenylphosphonous acid with dienes proceeds considerably more rapidly than that of the glycol esters of phenylphosphonous acid, owing to the greater electrophilicity of the phosphorus atom in catechol derivatives. The dienes, as regards the rate of condensation with the catechol and glycol esters of phenylphosphonous acid, can be arranged in the following descending order: isoprene, butadiene, piperylene, chloroprene. Finally, in condensation with glycol and catechol esters of phenylphosphonous acid, steric factors are important.

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USSR

UDC 537.563:547.341

BOGOLYUBOV, T. M., ZUBTSOVA, L. I., GRISHIN, N. N., RAZIMOVA, N. A., and
PETROV, A. A., Leningrad Technological Institute imeni Lensovet

"Organic Derivatives of the V-VII Group Elements. XVII. Mass-Spectra of
Phosphine Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 527-530

Abstract: Fragmented ions formed during mass-spectroscopical analysis of phosphines and phosphine oxides retain the positive charge on fragments containing heteroatoms. In this paper mass-spectra of phosphine oxides are reported, where this tendency does not exist. The spectra show high intensity of the molecular ion and fragmented hydrocarbon ions, in contrast to phosphates, phosphonates, and phosphine oxides. The predominance of fragmented hydrocarbon ions may be related to the presence of electron accepting substituents of the phosphorus atom. The intensity of the fragment ion m/e 54 correlates qualitatively with the activity of organophosphorus compounds in nucleophilic substitution reactions at the tetrahedral phosphorus atom.

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USSR

UDC 547.341

YEVTIKHOV, Zh. L., SHURUKHIN, B. B., RAZUMOVA, N. A., and PETROV, A. A.
Leningrad Technological Institute imeni Lensovet

"Reaction of Phenyl Ester of Ethyleneglycolphosphorous Acid With 1,3-Dienes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 480-481

Abstract: Investigation of the condensation of phenylethylene phosphite with 1,3-dienes showed that the reaction occurs without the elimination of the glycol radical and that it goes faster than an analogous reaction with alkyl esters. This indicates that beside the $p_{\pi}-d_{\pi}$ interactions the $p-\pi$ conjugation must also be important, so that the P-OPh bond is more labile than the P-OCH₃. Physical properties of two compounds are reported: 1-(2-phenoxyethoxy)-3-phospholine-1-oxide, m.p. 47-48°, b.p. 180°/1.0 mm, d_4^{20} 1.2201, n_D^{20} 1.5526; and 1-(2-phenoxyethoxy)-3-methyl-3-phospholine-1-oxide, m.p. 49-50°, b.p. 204°/1.0 mm, d_4^{20} 1.1902, n_D^{20} 1.5480.

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UDC 547.341

YEVTIKHOV, Zh. L., RAZUMOVA, N. A., and PETROV, A. A., Leningrad Technological Institute Imeni Leningra

"Condensation of Alkylphosphonous Esters With 1,3-Dienes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 479-480

Abstract: Alkylphosphonous acid esters condense with 1,3-dienes analogously to arylphosphonous acid esters. The IR spectra of the products show bands corresponding to the C=C bond frequencies at 1612-1615 cm^{-1} , P-C at 1236 cm^{-1} , and P-O-C at 1058-1062 cm^{-1} ; no P=O band was observed. Physical properties of two compounds are reported: 1-methyl-1,1-glycol-3-phospholine, b.p. 60°/1.0 mm, d_4^{20} 1.1320, n_D^{20} 1.5010; and 1-ethyl-1,1-glycol-3-methyl-3-phospholine, b.p. 72°/1 mm d_4^{20} 1.0728, n_D^{20} 1.4910. The condensation is faster than that of ethyl-enechlorophosphate and isothiocyanate, but slower than that of the glycol esters of phenylphosphonic acid, which may be due to the absence of the conjugation of the methyl group with phosphorus, resulting in vacant d-orbitals.

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USSR

UDC 547.341

RAZUMOVA, N. A., BAGROV, F. V. Leningrad Technological Institute imeni Lensovet

"Phosphorus-Containing Heterocyclic Compounds"

Condensation of Isothiocyanate of Pyrocatecholphosphorous Acid with 1,3-Dienes"

Leningrad, Zhurnal Obsheei Khimii, Vol 40, No 6, Jun 70, pp 1241-1245

Abstract: The condensation of isothiocyanate of pyrocatechol phosphorous acid with butadiene, isoprene, piperylene, and chloroprene was studied. At room temperature, the reaction was completed within 20-120 hours. The phosphorus containing component acts as electrophile and the reaction terminates when both components have formed an adduct. The structure of the resulting 1,1-pyrocatechol-1-isothiocyano-3-phospholenes was studied by Ir and NMR spectroscopy. The compounds are poorly soluble in organic solvents. Trifluoroacetic acid was used as solvent for the spectral work. Both alcoholysis and hydrolysis take place at the P-O bond.

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1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ARBUZOV REARRANGEMENT OF GLYCOLPHOSPHOROUS ACID DERIVATIVES -U-
AUTHOR--(03)-RAZUMOVA, N.A., YEVTIKHOV, ZH.L., PETROV, A.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 933-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, GLYCOL, FLUORIDE, MOLECULAR
STRUCTURE, HETEROCYCLIC OXYGEN COMPOUND, IR SPECTRUM, NMR SPECTRUM,
ELECTRON ACCEPTOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1514 STEP NO--UR/0079/70/040/004/0933/0934
CIRC ACCESSION NO--AP0135175
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135175

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ETBR DOES NOT REACT EVEN UNDER DRASTIC CONDITIONS WITH BROMIDES, CHLORIDES, OR ISOTHIOCYANATES OF CYCLIC PHOSPHITES OF GLYCOLS AND THESE DERIVS WITH ELECTRON ACCEPTOR GROUPS DISPLAY INHIBITION OF THE SN2 ATTACK OF THE PHOSPHITE ON THE C ATOM OF RX. IN FLUORIDES OF SUCH ESTERS, HOWEVER, THE CONJUGATION OF UNSHARED ELECTRON OF F WITH 3D ORBITALS OF P PROVIDE A STRONGLY NEG. CHARGE ON P, MAKING POSSIBLE THE ARBUZOV TYPE REACTION WITH ETBR. I WITH R EQUALS H OR ME HEATED WITH ETBR 40-50 HR AT 140-50DEGREES GAVE BRCH SUB2 CHROP(0)ETF: R EQUALS H, 83PERCENT, B SUB3 97DEGREES, N PRIME20 SUBD 1.4240, D PRIME20 1.4839; R EQUALS ME, 87PERCENT, B SUB1 90DEGREES, 1.4381, 1.4334, CONFIRMED BY IR AND NMR SPECTRA. THUS THE DONOR ACCEPTOR RELATIONSHIP IN THE ARBUZOV REACTION AND IN THE CONDENSATION WITH DIENES IS MUTUALLY CONTRADICTORY. WHILE IN THE ARBUZOV REACTION P ACTS AS A DONOR OF ELECTRONS RELATIVE TO RX, IN THE CONDENSATION OF P COMPODS. WITH DIENES IT SERVES AS AN ELECTRON ACCEPTOR.

FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 547.341

R
RAZUMOVA, N.A., YEVTIKHOV, ZH.L., and PETROV, A.A., Leningrad Technological
Institute imeni Lensovet, Leningrad, Ministry of Higher and Secondary Specialized
Education RSFSR

"Arbuzov Rearrangement of Glycolphosphorous Acid Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 933-934

Abstract: For purposes of comparing the mechanism of the condensation reactions of various trivalent phosphorus derivatives with 1,3-diene hydrocarbons with the mechanism of the classical Arbuzov rearrangement, the authors studied the reactions of a series of glycolphosphorous acid derivatives (ethylene- and propyleneglycolphosphorous acid fluorides) with ethyl bromide. The reaction products are the acid fluoride of β -bromoethyl ester of ethylphosphinic acid and the acid fluoride of β -bromoisopropyl ester of ethylphosphinic acid. The structure of the resultant compounds was confirmed by IR and N(P)MR spectra. The results indicate that the donor-acceptor interrelationships in the classical Arbuzov reaction and in the condensation

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RAZUMOVA, N. A., et al., Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 933-934

reaction with dienes with one and the same phosphorus components are mutually contradictory: in the Arbuzov rearrangement phosphorus has the function of electron donor with respect to the alkyl halide, while in the condensation reaction it is an electron acceptor.

2/2

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USSR

UDC: 621.396.69:621.372.54(088.8)

BEL'MAN, M. Kh., BLINOV, B. V., KUKHAR', V. V., GOLOVIZNINA, N. V.,
RAZUMOVA, T. A.

"An Electromechanical Filter"

USSR Author's Certificate No 270125, filed 10 Dec 68, published 30 Jul 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V345 P)

Translation: An electromechanical filter is proposed with a T-shaped resonance element whose ends fit into gaps in magnetic systems of input and output converters interconnected by two permanent magnets. To improve the thermal stability of the filter, shunts of thermomagnetic alloy are connected in parallel with the permanent magnets.

1/1.

Acc. Nr:

AP0049966

Abstracting Service:

CHEMICAL ABST. 5/70

Ref. Code:

4R0051

R

95176k Lasing and spectral characteristics of some polymethine dyes. Bonch-Bruевич, A. M.; Zatssepina, N. N.; Razumova, T. K.; Rubanova, G. M.; Tupitsin, I. E.; Shuvalova, V. N. (USSR). *Opt. Spektrosk.* 1970, 28(1), 100-4 (Russ). Lasing was followed for a series of polymethine dyes on excitation by a ruby laser. The absorption and fluorescence band positions, stability, and the relative transformation coeffs. of the pumping energy are tabulated. For cryptocyanine (I), dicarbocyanine (II), and tricarbocyanine, the lasing characteristics are given. The quantum yields and fluorescence spectra are almost independent of the dielec. const. of the solvent; the quantum yields increase with the solvent viscosity. The transformation coeffs. of I and II in EtOH decrease with the no. of the excitation pulse, when the laser emits several pulses in a flash, proceeding in $\sim 100 \mu\text{sec}$. The degree of the decrease depends on the excess of the excitation power of the laser over the threshold of the generation excitation of the dye.

P. Adamek

113

REEL/FRAME
19801904

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1/2 020
UNCLASSIFIED
TITLE--SOLUBLE AND MITOCHONDRIAL FORMS OF PENTOSE CYCLE DEHYDROGENASES IN
RABBIT SKELETAL MUSCLES -U-
AUTHOR--(03)-RAZUMOVSKAYA, N.I., PLESKOV, V.M., PEROVA, T.L.
COUNTRY OF INFO--USSR
SOURCE--BIOKHIMIYA 1970, 35(1), 196-201
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MITOCHONDRION, DEHYDROGENASE, MUSCLE PHYSIOLOGY,
HISTOCHEMISTRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0647
CIRC ACCESSION NO--AP0117873
STEP NO--UR/0218/70/035/001/0196/0201
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117873

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MITOCHONDRIAL AND SOL. FORMS OF GLUCOSE,6,PHOSPHATE DEHYDROGENASE (I) AND 6,PHOSPHOGLUCONATE DEHYDROGENASE (II) WERE DETECTED IN SKELETAL MUSCLES OF ADULT RABBITS AND THEIR 25-6-DAY EMBRYOS. I PREVAILED IN MITOCHONDRIA AND II IN THE SOL. FRACTION OF THE CELL. ACTIVITIES OF SOL. I AND II WERE 4-5 TIMES AS HIGH IN DENERVATED AND EMBRYONIC AS IN INTACT MUSCLES AND THE ACTIVITIES OF MITOCHONDRIAL DEHYDROGENASES WERE 2-2.5 TIMES HIGHER. THE ACTIVITIES INCREASED CONSIDERABLY LESS IN TENDONOTOMIZED MUSCLES. DEHYDROGENASES IN DENERVATED AND EMBRYONIC MUSCLES WERE MORE SENSITIVE TO PH CHANGES (MAX. ACTIVITY AT PH SIMILAR TO 7.5 AND MIN. AT PH 8.0-8.5) THAN BOTH DEHYDROGENASES IN INTACT MUSCLES, WHICH INDICATED THAT THERE WERE PROBABLY CHANGES IN THEIR ISOZYME PATTERNS. HISTOCHEM. TECHNIQUES GAVE EVIDENCE THAT THE INCREASE OF BOTH DEHYDROGENASES DUE TO DENERVATION WAS NOT CAUSED BY THE REPLACEMENT OF MUSCULAR FIBRILS BY CONNECTIVE TISSUE BUT BY ABSENCE OF NERVE IMPULSES TO THE MUSCLES.

FACILITY: DIV. BIOCHEM., INST. EXP. MED., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 669.25:669.017.3

BOKSHEYN, S. Z., LYUTSAU, V. G., RAZUMOVSKIY, I. M., SVETLOV, I. L., and
FISHMAN, Yu. M., All-Union Scientific Research Institute of Aviation Materials

"Martensitic Transformation in Cobalt Whiskers"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1277-
1284

Abstract: An x-ray investigation was made of the phase composition and dislocation structure of cobalt whiskers grown by CoBr_2 reduction at 720-760°C. The structures of whiskers in which an incomplete martensitic transformation occurred and the structures of whiskers with mixed phase composition are imperfect. Dislocations with the Burger vector $b=1/3\langle 111 \rangle$ lying in planes parallel to the habitus plane in transformation were found in crystals of these whiskers. In whiskers with a mixed phase composition, the dislocations are concentrated in regions retaining the high-temperature modification with a centered cubic structure. Obviously, martensitic transformations can occur in ideal crystals, but structural defects prevent the transformation development according to the martensitic mechanism. Three figures, fourteen bibliographic references.

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USSR

UDC 613(075.8)

2

ZIL'BER, D. A., (DECLASED), LOGINOVA, R. A., NOVIKOVA, I. M., OLEKHNOVICH, A. I., OSTROVSKIY, M. M., and RAZUMOVSKIY, N. D.,

Gigiyena (Hygiene), Moscow, "Meditsina," 1970, 384 pp

Translation: Annotation: This textbook has been compiled for students of pharmaceutical institutes and pharmaceutical faculties of medical institutes in accordance with the hygiene teaching program. It contains materials corresponding to the nature of their future work. Such materials concern problems of hygiene in pharmacies, labor hygiene in galenical and chemicopharmaceutical enterprises, foundations of epidemiology and organization of antiepidemic measures, and sanitary education.

The indicated subjects are completely lacking in hygiene textbooks issued for students of therapeutic, sanitary, and other faculties of medical institutes.

Some facets of general hygiene are elucidated also in this textbook without which it is impossible for students to learn certain hygienic problems which are specific for them as future specialist pharmacists.

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ZIL'BER, D. A., et al., Gigiyeen, Moscow, "Meditsina," 1970, 384 pp

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2/2 4/2

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--KINETICS OF THE REACTION OF N BUTYL N PRIME, N PRIME,
DIBUTYLHTIOUREA WITH OZONE -U-
AUTHOR-(04)-LIPKIN, A.M., RAZUMOVSKIY, S.D., GRINBERG, A.YE., GURVICH,
YA.A.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 192(1), 127-30
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION KINETICS, OZONE, CONDENSATION REACTION,
THIOUREA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1878 STEP NO--UR/0020/70/192/001/0127/0130
CIRC ACCESSION NO--AT0132140
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0132140

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE PRESENTED FOR THE REACTION OF O SUB3 WITH TRIBUTYLTHIOUREA (I). THIS (BROWN OIL), N PRIME20 SUBD 1.5147, D PRIME20 0.965, WAS PREPD. BY CONDENSATION OF BUNH SUB2 AND BU SUB2 NH WITH CS SUB2 IN H SUB2 O IN THE COLD, FOLLOWED BY ELIMINATION OF H SUB2 S BY HEATING; BY HEATING NA BUTYLDITHIOCARBAMATE WITH BU SUB2 NH.HCL; OR BY REACTION BY BUNCO WITH BU SUB2 NH. THE TITLE REACTION WAS FOLLOWED SPECTROSCOPICALLY. THE RESULTS, SHOWN GRAPHICALLY, SUGGEST THAT THE PROTECTIVE ACTION OF I AS AN ANTIOXIDANT APPEAR STRONGER IN THE EARLY STAGES OF THE REACTION, DURING WHICH A VOLATILE PRODUCT IS FORMED, ALONG WITH TRIBUTYLUREA. EVIDENTLY THE REACTION SEQUENCE IS: I PLUS O SUB3 YIELDS BUNHCONBU SUB2 PLUS SO SUB2; FOLLOWED BY REACTION OF THIS WITH O TO FORM BUNCO AND OTHER (UNIDENTIFIED) PRODUCTS. THE 1ST STEP HAS A HIGH REACTION RATE, WHICH COULD NOT BE MEASURED DIRECTLY. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REACTION OF AROMATIC AMINES WITH OLEFIN AZONIDES -U-
AUTHOR--(02)-POBEDIMSKIY, D.G., RAZUMOVSKIY, S.O. *R*
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 602-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AROMATIC AMINE, PHENYLENE, DAIMINE, OZONIDE, HEXENE, STYRENE,
EPR SPECTRUM, REACTION KINETICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0733 STEP NO--UR/0062/70/000/003/0602/0605
CIRC ACCESSION NO--AP0124403
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
 CIRC ACCESSION NO--AP0124403
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTIONS OF
 N,PHENYL,N-ISOPROPYL,P,PHENYLENEDIAMINE, AND 2,2 PRIME,4,4 PRIME,6,6
 PRIME HEXAMETHOXYDIPHENYLAMINE WITH OZONIDES OF 1,HEXENE AND STYRENE
 WERE EXAMD. BY AN EPR METHOD, WITH THE REACTIOS RUN IN SITU. THE
 REACTIONS FOLLOWED 2ND ORDER KINETICS AND IN THE 1ST STEP RESULTED (IN
 POLAR AND ACID MEDIA) IN CATION-RADICALS OF THE AMINES, WHILE IN
 NONPOLAR MEDIA THERE WERE FOUND RADICALS OF N OXIDES WHICH ARE PRODUCTS
 OF CONVERSION OF THE ORIGINAL CATION RADICALS. THUS EVEN THE RATHER
 STABLE N OXIDE RADICALS REACT RATHER RAPIDLY WITH THESE OZONIDES AND
 FORM PRODUCTS OF NONRADICAL NATURE. THIS WAS CONFIRMED BY EXPTS. WITH
 TETRAMETHYLPIPERIDONE 1, OXYL RADICAL AND THE ABOVE OZONIDES. IN
 NONPOLAR MEDIA THE RATE OF ACCUMULATION OF THE N OXYL RADICAL FORMED
 FROM THE ABOVE AMINES WAS SIMILAR TO 1.6×10^{-6} PRIME NEGATIVE6
 MOLE-L. SEC, I.E. SOME 30 TIMES SMALLER THAN THE RATE OF SUMMARY BIMOL.
 REACTION OF AMINE WITH OZONIDE (5×10^{-6} PRIME NEGATIVES MOLE-L. SEC).
 FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INTERMEDIATE STAGES OF THE ADDITION OF AZONE TO OLEFINS -U-
AUTHOR--RAZUMOVSKIY, S.D. *R*
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHM. 1970, (2), 335-43
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--OZONE, ALKENE, REACTION KINETICS, HEXENE, ETHYLENE,
CYCLOHEXENE, PYROLYSIS, PROPYLENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0753 STEP NO--UR/0062/70/000/002/0335/0343
CIRC ACCESSION NO--AP0124423
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124423

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM KINETIC DATA ON REACTION OF O SUB3-O SUB2 MIXTS. WITH OLEFINS IN THE LIQ. STATE OR IN SOLN. IN WHICH MECH:CH SUB2, ME SUB2 C:CH SUB2, 2, AND 3,HEXENES, CYCLOHEXENE, 1,DECENE AND PHCH:CH SUB2 WERE USED, ALONG WITH STILBENE, (PH SUB2 C:CH) SUB2 AND PROPYLENE DECAMER, THE LIKELY INTERMEDIATE STEPS IN OZONOLYSIS WERE EXAMD. THE KINETIC REACTION RATES FOR THE REACTIONS WERE TABULATED AND A GENERAL SCHEME PROPOSED. THE COMPN. OF INTERMEDIATE STEPS OF THE PROCESS WAS DEDUCED FROM CHROMATOGRAPHIC EXAMN. OF THE REACTION MIXTS. THE ESTN. OF FREE ACIDS FORMED IN THE REACTION WAS DONE BY CONVERTING THESE INTO ME ESTERS WITH CH SUB2 N SUB2, WHICH PER SE DOES NOT REACT WITH THE OZONIDES; THE LATTER WERE PYROLYZED AT 1000DEGREES AND THE ME ESTERS OF ACIDS WERE THUS LIBERATED FOR ESTN. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

RAZUMOVSKIY, O.V.

AA0044234

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243680 CABLE LAYING MACHINE digs trenches for cables along an old cable. A track laying motor vehicle pulls a plough. The coupling between the plough and the towing motor is pneumatic and it is controlled by radio signals. The level and the direction of ploughing are determined by the relative position of the plough to the cable.

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23.3.68 as 1228413/29-14. YA.I. MARCHEVSKI et al (J. 10.69)
Sul 17/14.5.69. Class 21c. Int.Cl. H 02g.

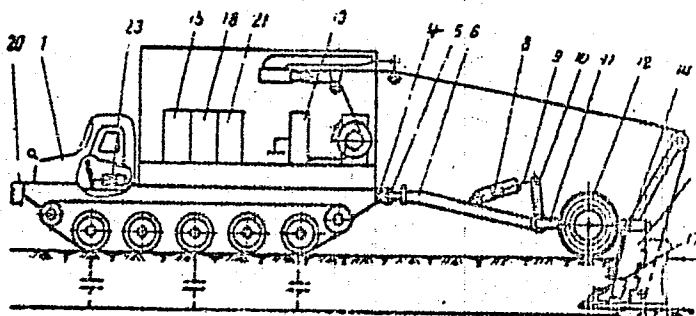
AUTHORS: Marchevskiy, Ya. I., Furto, G. S., Fishgal, S. I.,
Balaban, A. S., Pil'sanchuk, P. N., Imereli, V. B., Stepanenko,
L. K., Parkhotenko, A. I., Min'kovskaya, S. M., Voznesenskiy, I. A.,
Vishnyakov, I. Ye., Zinoveyev, A. I., Razumovskiy, O. V., Khrulev,
V. V., Politova, A. Ye., Khayzeruk, Ye. M., Smirnov, V. I.,
Malakhova, V. M.

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1/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THERMAL DECOMPOSITION OF PRODUCTS OF THE REACTION OF OZONE WITH
CYCLOOLEFINS -U-
AUTHOR-(03)-RAZUMOVSKIY, S.D., YURYEV, YU.N., TSYSKOVSKIY, V.K.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(2), 254-60
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMAL DECOMPOSITION, OZONE, DICARBOXYLIC ACID, ALDEHYDE,
HEXENE, CHEMICAL REACTION MECHANISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/0214 STEP NO--UR/0366/70/006/002/0254/0260
CIRC ACCESSION NO--AP0113153

UNCLASSIFIED

2/2 018
 CIRC ACCESSION NO--AP0113153
 ABSTRACT/EXTRACT--(U) GP-0-
 UNCLASSIFIED
 PROCESSING DATE--02JCT70
 ABSTRACT. THE REACTION OF D SUB3 WITH
 CYCLOHEXENE (I) OR CYCLOOCTENE (II) GAVE POLYMERIC OZONIDES OF I OR II
 (IA OR IIA, RESP.) IN 95-6PERCENT YIELDS AND 3-4PERCENT MONOMERIC
 OZONIDES (IB OR IIB, RESP.). IN THE OZONIZATION OF 1,5,CYCLOOCTADIENE,
 ONLY POLYMERIC OZONIDES WERE FORMED. THERMAL DECOMPN. OF THE MONOMERIC
 OR POLYMERIC OZONIDES GAVE THE SAME PRODUCTS (DICARBOXYLIC ACIDS,
 DIALDEHYDES, AND DIALDEHYDE CARBOXYLIC ACIDS), WHICH DEMONSTRATED THE
 CYCLIC NATURE OF BOTH TYPES OF OZONIDES. THE DECOMPN. OF 1,BUTENE
 OZONIDE GAVE ONLY MONOFUNCTIONAL PRODUCTS (HCHO, ACH, AND ACOH). THE
 ACTIVATION ENERGY OF IA AND IB THERMAL DECOMPN. WAS 34 PLUS OR MINUS 1.5
 KCAL-MOLE, I.E., CLOSE TO THAT OF 1,HEXENE OZONIDE (32 PLUS OR MINUS 2
 KCAL-MOLE). THE THERMAL DECOMPN. OF IA AND IB INVOLVED THE FORMATION OF
 INTERMEDIATE OLIGOMERIC AND POLYMERIC PRODUCTS, SUCH AS OCH(CH SUB2)
 SUB4 CH(OME)OOH AND OCH(CH SUB2) SUB4 CH(OME)OO(CH(CH) (CH SUB2) SUB4
 CH(OME)OO) SUBN. THE MECHANISM OF PRODUCT FORMATION WAS DISCUSSED.

UNCLASSIFIED

USSR

UDC 621.372.413

LAKHNO, V. I. and RAZUMOVSKIY, V. N.

"Two-Dimensional Electromagnetic Oscillations of a Dielectric Rectangular Prism"

V sb. Radioelektronika letatel'n. apparatov (Aviation Radioelectronics -- collection of works), Vyp.1, Khar'kov, Khar'kov. aviats. in-t, 1972, pp 37-44 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B120)

Translation: The authors solve the problem associated with the natural oscillation frequency of a rectangular dielectric prism using the partial wave method. The condition is found for the self-excitation of a laser where the condition takes into consideration the effect of the lateral plane faces of the active element. The proposed method can be used in the analysis of dielectric resonators with flat faces and of resonators of more complex form. The obtained results can be extended to cases involving solid state lasers with an active substance of arbitrary geometric form. Original article: two illustrations and four bibliographic entries.
Resume.

1/1

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USSR

UDC 541.49:535.343:546.92

GAVRILOVA, I. V., GEL'FMAN, M. I., IVANNIKOVA, N. V., KISELEVA, N. V.,
 RAZUMOVSKIY, V. V., Leningrad Electrotechnical Communications Institute
 imeni M. A. Bonch-Bruyevich

"Problem of the Trans-effect of Triphenylphosphite and Triphenylstibine"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol XVIII, No 1, 1973, pp 194-199

Abstract: The infrared spectra (500-200 cm^{-1}) of cation complexes of platinum trans- $[\text{Pt}(\text{NH}_3)_2\text{LCl}]\text{NO}_3$ ($\text{L} = \text{Ph}_3\text{P}, \text{Ph}_3\text{Sb}$) were measured. The ionization constants were found for the corresponding aquoions. A study was made of the thermodynamic stability of $[\text{Pt}(\text{NH}_3)_2(\text{Ph}_3\text{P})\text{Cl}]^+$ and $[\text{Pt}(\text{NH}_3)_3\text{Ph}_3\text{P}]^{2+}$ in aqueous solutions. Both the σ -donor and π -acceptor capacity decrease in the order $\text{Ph}_3 > \text{Ph}_3\text{Sb}$. Both trends are exhibited to approximately the same degree for each of the ligands.

The constants for the compared complexes were as follows:

Trans- $[\text{Pt}(\text{NH}_3)_2(\text{Ph}_3\text{P})\text{H}_2\text{O}]^{2+}$ $pK_a = 5.92$; trans- $[\text{Pt}(\text{NH}_3)_2(\text{Ph}_3\text{P})\text{Cl}]^+ pK_{\text{Cl}} = 3.65$

$[\text{Pt}(\text{NH}_3)_3\text{H}_2\text{O}]^{2+} pK_a = 5.50$; $[\text{Pt}(\text{NH}_3)_3\text{Cl}]^+ pK_{\text{Cl}} = 3.60$

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USSR

GAVRILOVA, I. V., et al., Zhurnal Neorganicheskoy Khimii, Vol XVIII, No 1, 1973, pp 194-199

A comparison of the thermodynamic characteristics with the spectroscopic characteristics shows that the frequency $\nu_{\text{Pt-Cl}}$ is primarily determined by the σ -donor properties of the ligand in the trans-position.

2/2

- 21 -

USSR

UDC 542.97:547.1'13:546.815:547.1'118

RAZUVEYEV, G. A., TROITSKIY, B. B., D'YACHKOVSKAYA, O. S., TROITSKAYA, L. S.,
MALYSHEVA, I. P., and LEPAYEV, A. F., Institute of Chemistry, Academy of
Sciences USSR

"Study of the Stabilizing Activity of Certain Organic Lead Compounds and
Their Mixtures With Organic Phosphites During Thermal Degradation of
Polyvinyl Chloride"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 12, Dec 73,
pp 2759-2764

Abstract: Triphenyllead isocyanate (I) was obtained for the first time in
a 72% yield and its thermal degradation was studied in the temperature
interval 180-22°. (I) exhibits stabilizing effect on the thermal degradation
of the polyvinyl chloride. This stabilizing activity of (I) and $(C_6H_5)_4Pb$
is due to an effective acceptance of HCl. In case of (I) it is also due to
the reaction with conjugated double bonds of polyvinyl chloride macromolecules.
 $(C_6H_5)_3PbNCO$, $(C_6H_5)_3PbCl$ and $(C_6H_5)_4Pb$ form mixtures with organic phosphites
acting synergistically on the rate of dehydrochlorination, crosslinking and
color changes of polyvinyl chloride.

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USSR

UDC 547.1'13

YERMOLOV, V. I., SOROKIN, YU. A., GLADYSHEV, YE. N., VYAZANKIN, N. S.,
and RAZUVAYEV, G. A., Institute of Chemistry, Academy of Sciences USSR

"Triethyl(triphenylphosphine- η -cyclopentadienylnickel)germane"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, p 1878

Abstract: Previously unknown triethyl(triphenylphosphine- η -cyclopentadienylnickel)germane was synthesized by the authors by two new methods:

1. An equimolar mixture of η^5 -C₅H₅ (C₆H₅)₃P NiCl and bis(triethylgermyl)-mercury is allowed to stand in 25 ml benzene for one hour at -20° . After separation of the mercury the solvent is boiled down under vacuum. The residue is crystallized twice from hexane at -75° .
2. The same compound is obtained by adding 7.7 g bis(triethylgermyl)-mercury to a solution of 2.9 g nickelocene and 3.9 g triphenylphosphine in 50 ml benzene (molar ratio of reactants 1:1:1) and heating the mixture to 40° (70 hours). The mercury is separated from the mixture and the product isolated, as above.

USSR

UDC 547.253.2

RAZUVAYEV, G. A., LATVAYEVA, V. M., VYSHINSKAYA, L. I.,
VASIL'YEVA, G. A.

"Reactions of Biscyclopentadienyldiphenyltitanium With Lithium-organic Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70,
pp 2033-2036

Abstract: Reaction of biscyclopentadienyldimethyltitanium with phenylmagnesium bromide and biscyclopentadienyldiphenyltitanium (I) with organolithium compounds occurs with reduction of titaniumorganic compounds, yielding monomeric benzene, metallic lithium, cyclopentadienyllithium, and a nonsymmetric compound of divalent titaniumphenylmethyltitanium. When (I) was reacted with benzylmagnesium chloride in a 1:1 ratio, benzene, cyclopentadienyllithium, and a nonsymmetric compound of trivalent titanium: cyclopentadienylphenylbenzyltitanium were obtained. Reaction of (I) with three moles of benzylmagnesium chloride gave benzene, toluene, dibenzyl, metallic lithium, cyclopentadienyllithium and phenylbenzyltitanium. It is proposed that all of these

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RAZUVAYEV, G. A., et al, Zhurnal Obshchey Khimii, Vol 40, No 9,
Sep 70, pp 2033-2038

reactions occur through the formation of a reversible onium complex which breaks down through a homolytic break of the Ti-R bond, yielding cyclopentadienyllithium and a nonsymmetric titanium organic compound.

2/2

Organometallic Compounds

UDC 547.258.2 + 547.258.81

USSR

RAZUVAYEV, G. A., LATYAYEVA, V. M., LINEVA, A. N., Scientific-
Research Institute of Chemistry at Gorki State University imeni
N. I. Lobachevskiy, Gorkiy, Ministry of Higher and Secondary
Specialized Education RSFSR

"Benzoyl Peroxide Reaction With Bicyclopentadienyl Titanium
Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70,
pp 1804-1812

Abstract: Reaction of bicyclopentadienyldiphenyl titanium with
benzoyl peroxide taken in a 1:1 ratio occurs with formation of an
intermediary complex $(C_5H_5)_2Ti(C_6H_5)_2(C_6H_5COO)_2$. Titanium is
reduced to the trivalent state -- probably through a preliminary
expansion of the electron cloud which results in the complex --
forming $C_5H_5Ti(OCOC_6H_5)_2$, benzene, and polymeric ether. Cyclo-
pentadienyltitanium dibenzoate reacts with benzoyl peroxide to
1/2

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RAZUVAYEV, G. A., et al, Zhurnal Obshchey Khimii, Vol 40, No 8,
Aug 70, pp 1804-1812

give cyclopentadienyltitanium tribenzoate. The same product may be obtained from the reaction of biscyclopentadienyltitaniumdiphenyl with benzoyl peroxide taken in a 1:5 ratio or through an exchange reaction $C_5H_5TiCl_3 + 43 C_6H_5COOAg$. When biscyclopentadienylphenylvanadium is reacted with benzoyl peroxide (a 1:1 ratio), biscyclopentadienylvanadiumdibenzoate is formed in a 50-80% yield plus benzene, polymeric ether, and some cyclopentadienylvanadiumtribenzoate. The yield of the latter product increases as the ratio benzoyl peroxide:biscyclopentadienylphenylvanadium is increased.

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS AND SOME REACTIONS OF DIETHYL (ALPHA, (TERT-BUTYLPEROXY)
ETHOXY) THALLIUM -U-
AUTHOR--(04)-RAZUVAYEV, G.A., MITROFANOVA, YE.V., DODONOV, A.A., MOLKOVA,
L.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAU. NAUK SSSR, SER. KHIM. 1970, (2), 465-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, ALKOXIDE, THALLIUM COMPOUND, PEROXIDE,
CHEMICAL DECOMPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0841 STEP NO--UR/0062/70/000/002/0465/0466
CIRC ACCESSION NO--AP0119745
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0119745
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 1.39 G ME SUB3 COOCHMEOH IN
ET SUB2 O TO 3.03 G ET SUB3 TI AT 5DEGREES GAVE C SUB2 H SUB6, AND AFTER
15 MIN, THE MIXT. WAS COOLED TO MINUS 75DEGREES TO PPT. 50-5PERCENT ET
SUB2 TIOCHMEODOCME SUB3, M. 10DEGREES. THIS IN DEGASSED C SUB6 H SUB6
HEATED 24 HR AT 50DEGREES GAVE ET SUB2 TIOAC AND ME SUB3 COH. SIMILARLY
IN CUMENE THE PEROXIDE DECOMPD. AT ROOM TEMP. IN 2.5 DAYS TO YIELD ET
SUB2 TIOAC, ME SUB3 COH, DICUMYL, AND ET SUB2 TIOH; A LOW YIELD OF ACH
WAS DETECTED ALSO. REACTIONS WITH ISO, PRBR AND ME SUB3 CBR IN C SUB6 H
SUB6 GAVE ET SUB2 TIOAC AND ME SUB3 COH. FACILITY: LAB. STABIL.
POLIM., GORKI, USSR.

UNCLASSIFIED

1/2 009
TITLE--REACTION OF SULFUR WITH BIS TRIETHYLSILYL AND BIS TRIETHYLGERMYL
MERCURY -U- UNCLASSIFIED PROCESSING DATE--04DEC70
AUTHOR--(04)--GALDYSHEV, YE.N., ANDREYEVICHEV, V.S., VYAZANKIN, N.S.,
RAZUVAYEV, G.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 4(4), 939
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SULFUR, ORGANOSILICON COMPOUND, ORGANOGERMANIUM COMPOUND,
ORGANOMERCURY COMPOUND, EXOTHERMIC REACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1440 STEP NO--UR/0079/70/040/004/0939/0939
CIRC ACCESSION NO--AP0135111
UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0135111

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ET SUB3 SI1SUB2 HG REACTED EXOTHERMICALLY WITH S WITHOUT A SOLVENT TO YIELD 94PERCENT ET SUB3 SISHGSIET SUB3, UNDISTILLABLE GREENISH LIQ., WHICH IN UV LIGHT DECOMPD. TO 100PERCENT HG AND (ET SUB3 SI1SUB2 S, 8 SUB7 125-7DEGREES. REACTION WITH HBR AT ROOM TEMP. RAPIDLY GAVE HG, ET SUB3 SIBR, AND ET SUB3 SISH. SIMILARLY, S AND (ET SUB3 GE1SUB2 HG GAVE AFTER 0.5 HR AT 5DEGREES HG AND (ET SUB3 GE1SUB2 S, AS EVIDENTLY THE EXPECTED INTERMEDIATE ET SUB3 GESHGGEET SUB3 IS VERY UNSTABLE. ONLY 1 EQUIV. S REACTED DESPITE ANY EXCESS PRESENT.

FACILITY: LAB. STABIL. POLIM., GORKI, USSR.

UNCLASSIFIED

1/2 009
UNCLASSIFIED
TITLE—REACTIONS OF ALPHA CHLORDETHYL TERT BUTYL PEROXIDE WITH
ORGANOMAGNESIUM COMPOUNDS -U-
AUTHOR—(03)—RAZUVAYEV, G.A., DODONOV, V.A., ZABURDYAYEVA, S.N.
COUNTRY OF INFO—USSR
SOURCE—ZH. GRG. KHIM. 1970, 6(4), 657-8
DATE PUBLISHED—70
SUBJECT AREAS—CHEMISTRY
TOPIC TAGS—CHLORINATED ORGANIC COMPOUND, ORGANIC PEROXIDE,
ORGANOMAGNESIUM COMPOUND, CHEMICAL REACTION
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—2000/2034
CIRC ACCESSION NO—AP0125622
STEP NO—UR/0366/70/006/004/0657/0658
UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0125622

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT.

THE REACTION OF TERT BUOOCHMECL

WITH RMGCL (R IS ME, BU, CYCLOHEXYL, PHCH SUB2, OR PH) IN ET SUB2 O

SOLN. GAVE 50-5PERCENT TERT BUOOCHMER.

UNCLASSIFIED

1/2 015
TITLE--TETRAKIS,PENTAFLUOROPHENYL,TITANIUM -U- UNCLASSIFIED PROCESSING DATE--30OCT70
AUTHOR--(04)--RAZUVAYEV, G.A., LATYAYEVA, V.N., KILYAKOVA, G.A., MALKOVA,
G.YA.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 620-1
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, ORGANOTITANIUM COMPOUND, BENZENE
DERIVATIVE, THERMAL DECOMPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1066 STEP NO--UR/0020/70/191/003/0620/0621
CIRC ACCESSION NO--AT0124723
UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AT0124723

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. C SUB6 F SUB5 LI TREATED IN ET
SUB2 O AT MINUS 70DEGREES WITH TICI SUB4 AND HELD 2 DAYS GAVE ON EVAPN.
20-30PERCENT ORANGE (C SUB6 F SUB5) SUB4 TI.2ET SUB2 O, H.
117-19DEGREES, WHICH WAS VERY HYGROSCOPIC. TREATED WITH HCL IT GAVE C
SUB6 F SUB5 H AND TICI SUB4. HGCL SUB2 GAVE (C SUB6 F SUB5) SUB2 HG AND
TICI SUB4. HEATED DRY THE SUBSTANCE IS STABLE TO 100DEGREES WHILE AT
120-30DEGREES IN THE MELT IT DECOMPS. EXPLOSIVELY; IN C SUB6 H SUB6 AT
200-50DEGREES IT WAS TOTALLY DECOMPD. IN 40-50 HR TO C SUB12 H SUB6 F
SUB4, M. 62DEGREES, C SUB6 F SUB5 H AND (C SUB6 F SUB5) SUB2, AND INORG.
TI FLUORIDES. POSSIBLY THE 1ST PRODUCT IS C SUB6 F SUB4 HPH.
FACILITY: NAUCH.-ISSLED. INST. KHIM., GOR'K, GOS. UNIV. IM.
LOBACHEVSKOGO, GORKI, USSR.

UNCLASSIFIED

1/2 019
UNCLASSIFIED
TITLE--TELOMERIZATION OF VINYL CHLORIDE BY CHLOROFORM AND TRICHLOROACETIC
ACID ESTERS -U-
AUTHOR--(04)-RAZUVAYEV, G.A., BOBINOVA, L.M., ZVEZDIN, V.L., YEGOROV, KIN,
A.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 637-40
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHLORINATED ORGANIC COMPOUND, VINYL CHLORIDE, CHLOROFORM,
POLYMER, ACETATE, ESTERIFICATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1903
STEP NO--UR/0062/70/000/003/0637/0640
CIRC ACCESSION NO--AP0123687
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123687

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. TELOMERIZATION OF VINYL CHLORIDE
WAS RUN IN THE PRESENCE OF FECL SUB2.4H SUB2 O IN AN AUTOCLAVE WITH CHCL
SUB3 OR ET OR ISO-PR ESTERS OF CCL SUB3 CO SUB2 H. FRACTIONAL DISTN.
YIELDED THE TELOMERS CHCL SUB2 CH SUB2 CHCL SUB2, CHCL SUB2 CH SUB2
CHCLCH SUB2 CHCL SUB2, AND CHCL SUB2 CH SUB2 CHCLCH SUB2 CHCLCH SUB2
CHCL SUB2 WHICH HAD PHYS. CONSTS. (B., N PRIME20 SUBD, D PRIME20,
RESP.): B SUB20 57-8DEGREES, 1.4820, 1.4555; B SUB1 83-4DEGREES,
1.5030, 1.4585; B SUB1 131-20DEGREES, 1.5139, 1.4524. THE ESTER TELOMERS
ISOLATED INCLUDED: (FORMULA SHOWN ON MICROFICHE). THE REACTION RUN
WITH CH SUB2:CHCL AND CCL SUB3 CO SUB2 ET IN ISO-PROH GAVE PRODUCTS OF
TELOMERIZATION COMPLICATED BY TRANSESTERIFICATION. FACILITY:
LAB. STABIL. POLIM., GORKI, USSR.

UNCLASSIFIED

icc. Nr

AP0032549

Abstracting Service:
CHEMICAL ABST. 3-70

Ref. Code

NE0000

R

55601p Reactions of bis(triphenylgermyl)cadmium with
protic reagents. Vyazankin, N. S.; Bvchkov, V. T.; Linzina,
O. V.; Razuvaev, G. A. (Polym. Stabil. Lab., Gorki, USSR).
J. Organometal. Chem. 1970, 21(1), 107-13 (Eng). Reactions of
bis(triphenylgermyl)cadmium with H_2O , $EtOH$, $PhOH$ and
carboxylic acids occur with heterolytic cleavage of one of the
germanium-cadmium bonds. $Ph_3GeCdOR$ ($R = H, Et, Ph,$
 Ac, CF_3CO, Bz), are formed as the final or intermediate products.
In the latter case they decomp. to cadmium and Ph_3GeOR or
react immediately with protic reagents with scission of the
Ge-Cd bond. Some complexes of bis(triphenylgermyl)cad-
mium, and related compds., with electron donors were in-
vestigated.

RCLC

7

REEL/FRAME

19700836

di

Acc. Nr: **AP0101483**

Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code:

UR 0079

121653k Reactions of tetracyclohexyltin. Razuvayev, G. A.;
Donirachev, G. A.; Kochetikhina, K. G.; Goncharov, V. A.
(USSR). *Zh. Obshch. Khim.* 1970, 40(3), 325-7 (Russ). Pyrolysis of $(C_6H_{11})_4Sn$ at 250° gave mainly cyclohexane and cyclohexene, metallic Sn, and H in 12% conversion; at 300° traces of methylcyclopentene and dicyclohexyl were also formed and some tar formation was obsd., while at 350° more cyclohexane and less cyclohexene were formed, the other product yields being comparable to those above. Reaction in the presence of Et_3NH gave more cyclohexane and less cyclohexene than were obtained without the added amine at 250°, but at 350° the yield of cyclohexane was lower and that of cyclohexene was higher than were obtained without the amine. Other product yields were comparable to those above. In the presence of $(CH_3OH)_2$ the yield of cyclohexane was raised, that of cyclohexene lowered considerably, and other product yields were comparable to those above, while some $(SnO:CCH_2O)_n$ was also formed. Thus, the disproportionation of the free radical intermediates increases with the temp. rise, while the β -elimination reaction is inhibited by the higher temp. The effect of the added amine is ascribed to coordination of it with the β -H atom (with respect to the Sn atom) of the cyclohexyl group. Thus, donor reagents in reaction with this R_4Sn exhibit their nucleophilic nature in the 1st step, then react as acids or as bases. G. M. Kosolapoff

REEL/FRAME

19851389

Acc. Nr.

AP0053762

Abstracting Service:
CHEMICAL ABST.

Ref. Code

UR0366

110967q Peracylalkyl(aryl) carbonates. VIII. Reactions of some aryloxy radicals with carbon tetrachloride. Razuvaev, G. A.; Starostina, T. I.; Dodonov, V. A. (Gor'k. Gos. Univ. im. Lobachevskogo, Gorki, USSR). *Zh. Org. Khim.* 1976, 6(2), 237-40 (Russ). The thermal decompn. of $BzOOCO_2R$ or AcO_2CO_2R (R is iso-Pr, Me, or cyclohexyl) at 60° in CCl_4 gives $RO_2CO\cdot$, $BzO\cdot$ and $AcO\cdot$ which lose CO_2 to give $RO\cdot$, $Ph\cdot$, or $Me\cdot$. $RO\cdot$ react with CCl_4 to give HCl, acetone (HCHO or cyclohexanone) and $Cl_3C\cdot$. $Cl_3C\cdot$ reacts further with HCHO to give $HCCH_3$, CO, and HCl. CPJR

REEL/FRAME
19830825

Acc. Nr:

AP0101484

Abstracting Service:

CHEMICAL ABST. 6-70

Ref. Code:

4R0079

121652j Reactions of a series of organotin compounds with diethylamine. Kochetikhina, K. G.; Domrachev, G. A.; Razuvaev, G. A. (USSR). *Zh. Obshch. Khim.* 1970, 40(2), 327-9 (Russ). Heating R_4Sn with Et_2NH 6 hr at 400° gave the following % yields of RH, olefin, R_3 , H_2 , C_2H_4 , MeCN, and tar, resp. (from the indicated value of R): Et, 3.3, 0, 0.34, 0.13, 0.38, 0.21, 73.6; Pr, 2.7, 0.72, 0.1, 0.33, 0.53, 0.18, 68.1; Bu, 2.0, 1.54, trace, 0.37, 0.52, 0.12, 71.5; and iso- C_4H_9 , 1.89, 1.81, 0, 0.41, 0.55, 0.07, 73.5%. The main reaction direction is the cleavage of H from the amine to form RH and with increasing chain length of R the proportion of the disproportionation reaction of the resulting radicals increases, while the decompn. of the radicals in the presence of Et_2NH is inhibited. The change in the product proportion in the presence of Et_2NH during such pyrolysis of R_4Sn is ascribed to coordination of the amine on a Sn atom, which reduces the polar effect of Sn on the β -elimination reaction.

G. M. Kosolapoff

REEL/FRAME
19851390

USSR

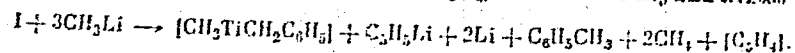
UDC: 547.258.2

BAZIYAYEV, G. A., LATYAYEVA, V. N., VASIL'YEVA, G. A., VYSHINSKAYA, L. I.,
Scientific Research Institute of Chemistry Affiliated With Gor'kiy State
University imeni N. I. Lobachevskiy

"The Reaction of Dicyclopentadienyldibenzyltitanium With Organolithium Com-
pounds"

Leningard, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1306-1310

Abstract: The authors studied the reaction of dicyclopentadienyl dibenzyl-
titanium $(C_6H_5)_2Ti(CH_2C_6H_5)_2$ (I) with methyl- and benzyl lithium in ratios of
1:1 and 1:3 in an attempt to synthesize new organotitanium compounds. Com-
pound (I) reacted with 1 mole of methyl lithium to form cyclopentadienyllithium,
toluene and methane. The excess methyl lithium caused further reduction of
 Ti^{III} to Ti^{II} . Compound (I) reacted with 3 g-mol of methyl lithium as follows:

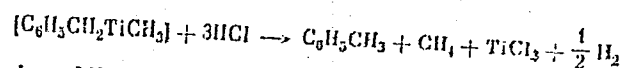


Hydrochloric acid hydrolysis of the asymmetric titanium compound gave toluene,
methane and a salt of Ti^{III} .

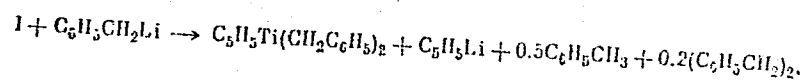
1/2

USSR

RAZUVAYEV, G. A., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1306-1310



Attempts to synthesize dibenzyltitanium by thermal dissociation of tetrabenzyltitanium (II) were unsuccessful. Dibenzyltitanium and cyclopentadienyl dibenzyltitanium (III) were synthesized by reacting compound (I) with benzyl-lithium in various ratios.



Product (III) is stable when stored at room temperature for long periods. The reaction of compound (I) with 2 moles of methyl lithium produced cyclopentadienyllithium, toluene and dibenzyl. Metallic lithium was also found.

2/2

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USSR

UDC 669.245.018.44(088.8)

13
PANASYUK, I. O., BRUSILOVSKIY, B. S., VILKOV, V. I., VORONIN, G. M., YEGOROV, YE. YE., YELKIN, I. S., KLIMOV, L. YA., KOVROVA, YE. A., KONTSEVAYA, YE. M., LYUBINSKAYA, N. A., MILENINA, YE. G., MIKHAYLOV, I. A., ~~RAZUVAYEV, YE. I.~~ SIROTKIN, A. I., SOLDATCHENKO, V. A., SPILITSIN, R. I., SHAPIRO, S. M.

"Nickel-Chromium Base Alloy"

USSR Author's Certificate No 276418, Filed 2 Jun 69, Published 16 Oct 70 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4I766P)

Translation: The heat-resistant alloy has the following composition (in %): C 0.03-0.1, Cr 30-40, W 3-5.5, Mo 2-4, Ti 0.5-1.5, Al 0.5-1.5, Nb 0.5-1.5, Ce 0.01-0.3, B 0.003-0.008, Ni, the rest. The alloy has increased heat resistance and also the following mechanical and physical-chemical properties at 1,100°: σ_B 8 kg/mm², δ 65%, $\sigma_{\text{stress-rupture}}$ 1 kg/mm², coefficient of linear expansion $15 \cdot 10^{-6} \text{ deg}^{-1}$, increase in weight after 100 hours of heating at 1,200° in the air 0.6 g/m². It is corrosion-resistant in a moist atmosphere under tropical conditions, in sea water, and in the products of combustion of highly sulfurous fuel.
1/1

USSR

UDC 620.17:669.295'229'71

MOROZ, L. S., and RAZUVAYEVA, I. N.

"Effect of β -Stabilizers on the Mechanical Properties of Titanium Alloys with α -Structure"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 34-39

Abstract: A study was made of the effect of β -stabilizing additives on the mechanical properties of titanium and its α -alloys with different initial structure and the causes of variation of the properties of titanium alloys on introduction of β -stabilizers. It was discovered that introduction of β -stabilizers in the α -alloy of titanium with an initial fine-grain structure improves the strength and limiting plasticity since the structure is refined and parts of the β -phase with body-centered lattice and a higher content of possible glide planes than the α -phase with a close packed lattice appear. Increasing the β -stabilizers in the alloys with a large-grain coarse-plate structure formed during slow cooling from the β -region lowers the limiting plasticity the greater the β -stabilizer content in

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USSR

MOROZ, L. S., and RAZUVAYEVA, I. N., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 34-39

in the alloy. This takes place as a result of an increase in the degree of inhomogeneity of occurrence of plastic flow in the alloy with large-grain structure with an increase in content of β -stabilizers in the alloy. With an increase in concentration of β -stabilizer close to the critical, an increase in the aluminum content to 6-8% lowers the plastic characteristics sharply (especially the limiting plasticity) independently of the structure of the alloy. This is explained by supersaturation of the α -phase with aluminum and the occurrence of the α_2 -phase in individual parts of it.

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- 40 -

USSR

UDC 620.17:669.295'229'71

MOROZ, L. S., and RAZUVAYEVA, I. N.

"Effect of β -Stabilizers on the Mechanical Properties of Titanium Alloys with α -Structure"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov,
No 3, 1971, pp 34-39

Abstract: A study was made of the effect of β -stabilizing additives on the mechanical properties of titanium and its α -alloys with different initial structure and the causes of variation of the properties of titanium alloys on introduction of β -stabilizers. It was discovered that introduction of β -stabilizers in the α -alloy of titanium with an initial fine-grain structure improves the strength and limiting plasticity since the structure is refined and parts of the β -phase with body-centered lattice and a higher content of possible glide planes than the α -phase with a close packed lattice appear. Increasing the β -stabilizers in the alloys with a large-grain coarse-plate structure formed during slow cooling from the β -region lowers the limiting plasticity the greater the β -stabilizer content in

1/2

USSR

MOROZ, L. S., and RAZUVAYEVA, I. N., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 34-39

in the alloy. This takes place as a result of an increase in the degree of inhomogeneity of occurrence of plastic flow in the alloy with large-grain structure with an increase in content of β -stabilizers in the alloy. With an concentration of β -stabilizer close to the critical, an increase in the aluminum content to 6-8% lowers the plastic characteristics sharply (especially the limiting plasticity) independently of the structure of the alloy. This is explained by supersaturation of the Q -phase with aluminum and the occurrence of the Q_2 -phase in individual parts of it.

2/2

- 40 -

1/2 040
TITLE--IONIZATION NONEQUILIBRIUM STATE DURING THE COOLING OFF OF A PULSED
DISCHARGE PLASMA -U-
AUTHOR--(02)-SNOPKO, V.N., RAZUVAYEVA, L.A. R
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. SPEKTROSK, 1970, 12,2, 203-7
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--IONIZATION, DISCHARGE PLASMA, COOLING, SPECTRAL LINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/1015
STEP NO--UR/0368/70/012/002/0203/0207
CIRC ACCESSION NO--AP0107529
UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 040

CIRC ACCESSION NO--AP0107529
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A STUDY WAS MADE WITH A PULSED PLASMA CURRENT WITH PULSES OF ALMOST CONST. CURRENT OF 300 A WITH 0.5 MSEC DURATION. THE DISCHARGE RADIATION WAS ANALYZED SPECTROGRAPHICALLY. THE INTENSITIES OF 2 LINES OF Cu WERE MEASURED AND COMPARED. ONE LINE, 4586.97 ANGSTROM (Z PRIME4 F SUBSEVEN HALVES-E PRIME4 D SUBFIVE HALVES), IS CAUSED BY A TRANSITION FROM A LEVEL WITH A HIGH PROBABILITY OF AUTOIONIZATION, AND THE OTHER, 4651.12 ANGSTROM (Z PRIME4 F SUBSEVEN HALVES-E PRIME4 D SUBSEVEN HALVES), BY A TRANSITION FROM A LEVEL WITH NO AUTOIONIZATION. THE INTENSITIES OF THESE 2 LINES WERE COMPARED IN DIFFERENT TIME PHASES DURING AND AFTER THE PULSE DISCHARGE AND ALSO IN THE AMT. OF IONIZATION AND RECOMBINATION PROCESSES. DURING THE COOLING PHASE, THE IONIZATION DECREASES MORE RAPIDLY THAN THE RECOMBINATION, AND IT CAUSES A DEVIATION FROM IONIZATION EQUIL. IN THE PLASMA.

UNCLASSIFIED

USSR

SNOPKO, V. N., RAZUVAYEVA, L. A.

"Ionization Nonequilibrium in the Cooling of the Plasma of a Pulsed Discharge"
Minsk, Zhurnal Prikladnoy Spektroskopii, February 1970, pp 203-207

Abstract: The interrelationship of the departure from ionization equilibrium during the cooling of a plasma and the relative intensity of lines with negative levels was considered. An experimental study was made of the behavior of the ratio of the intensity of an auto-ionization line to that of a nonauto-ionization line along a quasi-stationary plasma jet and with spherical dispersion of the plasma. The principle established was explained by hypothesizing the destruction of ionization equilibrium and the predominance of the role of recombination in the population of auto-ionization levels during the cooling of the plasma.

The article includes 3 illustrations. There are 11 references.

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UDC: 535.373.2

USSR

SEVCHENKO, A. N., KUENETSOVA, V. V., PUKO, R. A., KUCHMENKO, V. S.,
RAZVINA, T. A., and KOZHAN, T. K.

"Intramolecular and Intermolecular Transfer of Excitation Energy
in Complex Compounds of Rare-Earth Metals"

Moscow, Izvestiya AN SSSR -- Seriya Fizicheskaya, vol 36, No 5,
1972, pp 1015-1017

Abstract: This paper gives the results of experiments for determining, through the kinetic method, the probability of intramolecular and intermolecular transfers of excitation energy in crystals of rare-earth element (REE) complexes. With excitation by short light pulses, the kinetics of the luminescence reflects the trend of the population and the deactivation of the luminescence level and yields direct information concerning the probability of these processes. A pulsed laser with molecular nitrogen was used as the excitation source, with a pulse duration of $2 \cdot 10^{-8}$ sec and a wavelength of 337.1 nm in the long-wave band of ligand absorption. The authors are connected with the Physics Institute of the USSR Academy of Sciences.

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UDC: 547.26'118

USSR

RAZVODOVSKAYA, L. V., GRAPOV, A. F., MEL'NIKOV, N. N., All-Union Scientific
Research Institute of Chemical Agents for Plant Protection

"The Reaction of Phosphonic and Thiophosphonic Acid Chlorides With
 α -Pyrrolidone"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1277-1282

Abstract: The authors investigated the reaction of phosphonic and thiophosphonic acid chlorides with substituted amides of carboxylic acids and lactams, and also studied the reaction of secondary amides of phosphonic acids with acetyl chloride. It was found that when pyrrolidon-2-ylmethylphosphonic acid chloride reacts with primary and secondary amines and anilines, asymmetric diamides of methylphosphonic and thiophosphonic acids are formed. The same products were formed by reacting pyrrolidon-2-ylmethylphosphonic acid with primary amines and anilines. The products of the reaction of pyrrolidon-2-ylmethylphosphonic acid with secondary amines, alcohol and phenol undergo thermal decomposition leading to the formation of α -thiopyrrolidone and its conversion products. When methylphosphonic acid dichloride reacts with α -pyrrolidone, a mixture of pyrrolidon-2-ylmethylphosphonic acid chloride, 1-

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RAZVODOVSKAYA, L. V., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 6,
Jun 72, pp 1277-1282

(pyrrolinyl-2) pyrrolidone-2 phosphonate and di(pyrrolidon-2-yl) dimethyl
pyrrophosphonate is produced. The authors thank T. F. Tulyakova, M. Sh.
Shifman and M. K. Vasilenko for doing the spectral studies.

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USSR

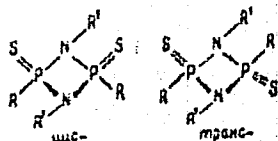
UDC: 543.422+541.65:546.185

GRANZHAN, V. A., GRAPOV, A. F., RAZVODOVSKAYA, L. V., and MEL'NIKOV, N. N.,
Scientific Research Institute of Chemical Agents for Plant Protection

"Dipole Moments and Structure of Dithiocyclodiphosphazanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 39 (101), No 7, Jul 69, pp 1501-1504

Abstract: The method of dipole moments is used for studying the configuration of some dithiocyclodiphosphazanes. The dipole moments were measured in benzene at 25°C by the dilute-solution method using the DK-Meter 600 EL dielcometer. The dipole moments were calculated according to the Hedestrand formula. It is shown that these dithiocyclodiphosphazanes may exist in the cis and trans forms:



1--cis; 2--trans

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UDC: 546.18

USSR

GRAPOV, A. F., MEL'NIKOV, N. N., and RAZVODOVSKAYA, L. V., All-Union Scientific Research Institute for Chemical Means of Plant Protection, Moscow, State Committee for Chemistry USSR

"Cyclodiphosphazanes"

Moscow, Uspekhi Khimii, Vol 39, No 1, Jan 70, pp 39-61

Abstract: Recent foreign and Soviet literature on the chemistry of four-membered N-P ring compounds which might be used in heat-resistant plastics or biologically active preparations is reviewed. The compounds described contain alternating P and N atoms in the ring with tri, tetra, or penta-coordinate P atoms. The reviewed data pertain to determination of the structure of cyclodiphosphazane ring and studies of syntheses, chemical conversions, and physical and chemical properties of cyclodiphosphazanes. Relative positions of atoms in the molecules were determined and the nature of the N-P bond was conclusively established in compounds with tetra- and penta-coordinate P atoms only. These conclusions were made from data obtained by X-ray diffraction study, analysis of the IR, UV, Raman, and NMR spectra, and measurements of dipole moments.

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UDC 576.858.8

USSR

RAZVYAZKINA, G. M., and POLYAKOVA, G. P., All Union Scientific Research Institute of Phytopathology, Bol'shiye Vyazemy, Moskovskaya Oblast'

"Electron Microscope Study of Winter Wheat Mosaic Virus in Its Carrier -- *Psammotettix striatus* L."

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 5, 1970, pp 1171-1173

Abstract: An attempt was made to localize winter wheat mosaic virus particles in individual organs of its carrier (*Ps. striatus* L.). Virus-specific particles of bacillary form were found in ultrafine sections of salivary glands of the carrier. Virus particles were localized in channels of the endoplasmatic reticulum near membrane structures resembling laminated cytosomes, and inside vacuole-like structures (the intracellular channels). In addition to the bacillary particles, which are also found in infected wheat plants, elongated spiral structures (which in some cases become quite dense), surrounded by thread-like material, were found in the salivary glands. These structures sometimes appear to be fragmented. Morphologically, these new particles are identical with particles found in winter wheat plants infested with mosaic virus. It is proposed that the accumulation and fragmentation of the observed particles represent various stages of virus formation in these cells.

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UDC 615.849.19.015.4:612.35

USSR

OGNEV, B. V., VISHNEVSKIY, A. A., TROITSKIY, R. A., KECUM, E. M., RAZYGRIN, B. A., and FEDOTKIN, G. F., Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences, Chair of Operative Surgery and Topographical Anatomy, USSR, and Central Institute of Advanced Training of Physicians, Ministry of Health USSR, Moscow

"Effect of Laser Radiation on Rabbit Liver"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1972, pp 20-23

Abstract: Following laparotomy, the right lobes of the livers of rabbits were exposed to either pulsed or continuous laser waves. The pulsed waves produced a local burn and coagulation necrosis of the tissue together with hemorrhages and thrombosis of the blood vessels. Continuous laser irradiation resulted in bloodless incision of liver parenchyma and formation of a sear at the site of entry 5 days later. Vascularization was restored within 15 to 30 days with the formation of blood vessels possessing an atypical structure (narrowed, enlarged, amputated, bent, etc.).

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USSR

UDC 621.38:61

LAGUNOVA, I. G., LIKHOVETSKAYA, L. L., VISHNEVSKIY, A. A., ROZENFEL'D, E. B.,
RAZYGRIN, B. A., VANYUKOV, M. P., and MALYSHEV, B. N.

"Irradiation of Metastases of Melanoma By Pulsed Laser"

V. sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 203
(Use of Lasers in Contemporary Technology and Medicine. Parts 2-3 -- Collec-
tion of Works), Leningrad, 1971, p 102 (from RZh Elektronika i yeye Primeneniye,
No 2, Feb 72, Abstract No 2A508)

Translation: Melanomas are first among primary malignant tumors which metastasize to the skin, Use of laser emission in such cases is advisable in view of the possibility of simultaneous irradiation of several dozen tumor sites. Type GOS-500 and GOS-1000 pulsed neodymium lasers operating in a free pulse generation modes were used for irradiation. The output energy of the pulse fluctuated from 100 to 500 joules. The total density of the incident energy at the metastatic tumor varied from 1,000 to 5,000 joules/cm². Summary.

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UDC: 681.333:621.391

USSR

KULAKOV, S. V., RAZZHIVIN, B. P., TIGIN, D. V., SOKOLOV, S. I.

"An Optico-acoustic Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 15, Apr 73, Author's Certificate No 374633, Division G, filed 18 Jun 71,
published 14 Jul 73, p 112

Translation: This Author's Certificate introduces an optico-acoustic device which contains a delay circuit and electronic amplifiers, and installed on the optical axis: a light source, condenser, collimator, first ultrasonic light modulator, input lens, slit screen, shaping lens, second ultrasonic light modulator, output lens, and photoamplification module. As a distinguishing feature of the patent, the frequency band of signals which can be handled is extended, and the operating efficiency of the device is improved by adding a dispersion quadripole with linear dispersion characteristic and a pulse generator with linear frequency modulation. The inputs of the quadripole and pulse generator are connected to the input of the device, and the output of the dispersion quadripole is connected through the corresponding amplifier to the input of the second ultrasonic light modulator,

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USSR

KULAKOV, S. V. et al., USSR Author's Certificate No 374633

while the output of the pulse generator is connected through the series connected delay circuit and other amplifier to the input of the first ultrasonic light modulator.

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1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THREE REMARKS TO THE PROBLEM OF INCREASING ENTROPY -U-

AUTHOR--REBANE, K.

COUNTRY OF INFO--USSR

SOURCE--EESTI NSV TEADUSTE AKADEEMIA, TOIMETISED, FUUUSIKA MATEMAATIKA,
VOL. 19, NO. 2, 1970, P. 203-208
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--ENTROPY, SOLAR SYSTEM, MODEL, SOLAR RADIATION, ALBEDO

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1470

STEP NO--UR/0458/70/019/002/0203/0208

CIRC ACCESSION NO--AP0125098

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125098

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE PROBLEM OF INCREASING ENTROPY FORMULATED AS THE PROBLEM OF 'DEATH DUE TO HEAT' FOR THE ENTIRE UNIVERSE OR FOR ITS PORTION CURRENTLY ACCESSIBLE TO OBSERVATION, AND FORMULATED (AT A LOWER LEVEL) AS THE PROBLEM OF ACHIEVING THERMAL BALANCE FOR OUR SOLAR SYSTEM. IT IS SHOWN THAT FOR A LARGE AND COMPLICATED SYSTEM AS THE EARTH, DEATH DUE TO HEAT NEED NOT SET IN EVEN IN THE ABSENCE OF ENERGY INPUT FROM OUTSIDE THE SYSTEM. SUCH A SYSTEM APPEARS TO BE 'OPEN TO THE INSIDE.' MAKING IT POSSIBLE, IN PRINCIPLE, TO KEEP A HIGH LEVEL OF NEGATIVE ENTROPY IN IT. IT IS ALSO SHOWN THAT, SINCE THE ENERGY CONDITIONS ON THE EARTH ARE ROUGHLY STATIONARY, THE ENERGY OF SOLAR RADIATION MUST BE ROUGHLY EQUAL TO ENERGY OF THE RADIATION FLUX TRANSFORMED AND REFLECTED BY THE EARTH. AN ESTIMATE OF THE INCREASE IN ENTROPY IS OBTAINED ON THE BASIS OF A SIMPLE MODEL. FACILITY: AKADEMIIA NAUK ESTONSKOI SSR, INSTITUT FIZIKI, I ASTRONOMII, TARTU, ESTONIAN SSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--INTERACTION OF COLOR CENTERS WITH OTHER LATTICE DEFECTS IN ZINC
SULFIDE PHOSPHORS -U-
AUTHOR--(02)-PIYR, K., REBANE, K.
COUNTRY OF INFO--USSR
SOURCE--EESTI NSV TEAD. AKAD. TOIM., FUUS., MAT. 1970, 19(1), 75-83
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ZINC SULFIDE, CRYSTAL PHOSPHOR, LUMINESCENCE QUENCHING,
COPPER, IRON, NICKEL, COBALT, IMPURITY LEVEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1694 STEP NO--UR/0458/70/019/001/0075/0083
CIRC ACCESSION NO--AP0118672
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0118672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELAXATION TIME MAX. OF THE EXCITATION ABSORPTION (EA) OF ZNS PHOSPHORS IS AT 5400 ANGSTROM. THE EA AND THE RESPECTIVE RELAXATION TIMES INCREASE UPON ADMIX. OF CU, FE, NI OR CO. THE IR LUMINESCENCE QUENCHING AS A FUNCTION OF CONC. OF CU AND FE WAS DETD. THE INTERACTION OF THE COLOR CENTERS IS CONSIDERED TO HAVE MAINLY AN ELECTRON HOLE CHARACTER. TUNNELLING MECHANISM IS POSSIBLE.
FACILITY: TARTU. GOS. UNIV., TARTU, USSR.

UNCLASSIFIED

USSR

UDC: 535.371

REBANE, K. K., SAARI, P. M., and MAURING, T. Kh.

"Hot Luminescence of Impurity Molecular Ions in Alkali-Halide Crystals"

Moscow, Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya, No 4, 1973,
pp 848-854

Abstract: This article is a short review of the results of experimental and theoretical work published on hot luminescence (HL) in rapidly relaxing impurity centers of a crystal. Some new experimental data is given, along with discussions of some general questions. Hot luminescence is here defined as the luminescence emitted before the establishment of thermal equilibrium in the course of oscillatory relaxation of the impurity center. The differences between hot luminescence in rapidly relaxing systems and HL in slowly relaxing systems are: the possibility of interference of HL with combination dispersion; its duration -- i.e., the afterglow following instantaneous excitation; its unique extinction processes. HL is interesting because: it offers a method of studying relaxation processes; it is a component of secondary glow, which must be considered in the interpretation of experiments on dispersion; it is an independent and new component of secondary glow. Bibliography of 25.

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USSR

UDC 535.37

REBANE, K. K.

"Secondary Emission of an Impurity Center in a Crystal (On the Resonance Secondary Emission of a Luminescence Center)"

Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya (News of the Academy of Sciences USSR, Physics Series), Vol 35, No 7, 1971, pp 1324-1329

Abstract: Work on secondary emission is reviewed briefly. Resonance secondary luminescence can be represented as a superposition of two spectra: 1) a Rayleigh scattering line and its vibrational replications and 2) a purely electronic line with its vibrational replications. The latter spectrum also contains hot luminescence, which is extremely small in rapidly relaxing centers. Hot luminescence is emitted by a center from high vibrational sublevels of the excited electron state during relaxation of excess vibrational energy above thermal energy. Under the rigorous condition that the frequencies of local vibrations in the ground and excited electron states be identical, hot

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USSR

REBANE, K. K., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol 35, No 7, 1971, pp 1324-1329

luminescence and scattering theoretically interfere with each other.

Hot luminescence of the NO_2^- ion was studied experimentally in alkali halide crystals (e.g., KCl-NO_2^- , KBr-NO_2^-) at liquid nitrogen and boiling helium temperatures. The hot luminescence spectrum is found to be dependent on the excitation frequency, the most intense lines have phonon extremities, and the decay times of the excited states of local vibrations can be calculated from the intensity of the hot lines and related experimental data. Supercool luminescence, emitted during rotational relaxation, is mentioned.

Orig. art. has 4 figs. and 16 refs.

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USSR

UDC 535.376

REBANE, K. -S. K., RUTTAS, V. I.

"Thermally Stimulated Luminescence and Stimulation of Infrared
by the Light of ZnS-CI Phosphores"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spec-
troscopy), Vol 15, No 4, Oct 71, pp 647-652

Abstract: A study is made of the effect of the quantity of NaCl
in a sample and the effect of preliminary heating of ZnS powder
in hydrogen. With increase in NaCl content, the fundamental
thermally stimulated luminescence (TSL) bands at 160°K are
broadened and shifted toward lower temperatures. New peaks are
also seen. In the region of 100 to 150°K the TSL intensity in-
creases by one order (max) when the NaCl content is raised from
1 to 5%. New bands appear in the TSL curve with prior heating
of the ZnS powder in hydrogen.

Spectra were taken of ir-stimulated luminescence at liquid nitro-
gen temperature. The concentration of NaCl does not essentially

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